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ABSTRACT

This paper reports on more than five years of research on teachers who were engaged in or associated with the process of working on educational change. During this period many variables that may influence individual teacher decisions regarding change were studied. This paper reports findings regarding the apparent influence of these variables on the decisions made regarding change. It also describes the implications of these findings for those responsible for guiding change. (Author)

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CHANGES IN CONCERNS ABOUT THE INNOVATION RELATED TO ADOPTER CHARACTERISTICS, TRAINING WORKSHOPS, AND THE USE OF THE INNOVATIONS

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April, 1980

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Introduction

In recent years the topic of educational change has been the subject of an increasing number of research studies. Initially, studies of educational change were conducted principally for the purpose of evaluating program outcomes and this type of research still abounds today. From these evaluation studies, it became clear that many change efforts had failed to produce the outcomes they had promised. The millions of dollars directed toward the development and use of new programs and products had had limited pay-off in terms of desired outcomes.

These findings led to research efforts designed to investigate why change efforts were so frequently unsuccessful and to find solutions to the problems. For the past six years, the Research on Concerns-Based Adoption (RCA) Project at the Research and Development Center for Teacher Education at The University

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[1]The research described herein was conducted under contract with the National Institute of Education. The opinions expressed are those of the authors and do not reflect the position or policy of the National Institute of Education, and no endorsement by the National Institute of Education should be inferred.

of Texas at Austin, with funding from the National Institute of Education, has been engaged in research on the problems of educational change.

A Model for Change

RCA research is based on a conceptualization that is embodied in the Concerns-Based Adoption Model (CBAM) (Hall, Wallace & Dossett, 1973). Several assumptions underlie this model. First, educational change is not an event that occurs at one point in time, but is a process that occurs over time. Second, this process which we call innovation implementation, is individualistic. Each person decides for herself or himself how she or he will use the innovation. A third assumption is that those who do implement the innovation will make individual decisions regarding the extent and manner of their use.

The model is based on two major dimensions, Stages of Concern About the Innovation (SoC) and Levels of Use of the Innovation (LoU). Stages of Concern is the affective dimension of the CBAM. Seven different Stages of Concern About the Innovation have been identified (see Figure 1) and an SoC Questionnaire has been developed to assess them. These Stages of Concern range from concerns about self to concerns about the task of using the innovation and finally concerns about the impact of the innovation.

Levels of Use describes how individuals' behaviors change as they develop familiarization and increasing skill in using an innovation. Eight discrete Levels of Use of the Innovation have been defined, ranging from "lack of knowing that the innovation exists" to "sophisticated use" and "searching for a superseding innovation" (see Figure 2). A focused interview is used to assess each individual's Level of Use.

In early research efforts it became apparent that there was a third dimension that must be considered in research on innovation implementation. It was found that a single innovation is rarely operationalized in the same way

Figure 1

Definitions:

STAGES OF CONCERN ABOUT THE INNOVATION*

6 REFOCUSING: The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

5 COLLABORATION: The focus is on coordination and cooperation with others regarding use of the innovation.

4 CONSEQUENCE: Attention focuses on impact of the innovation on students in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

3 MANAGEMENT: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

2 PERSONAL: Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision-making and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

1 INFORMATIONAL: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

0 AWARENESS: Little concern about or involvement with the innovation is indicated.

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*Original concept from Hall, G. E., Wallace, R. C., Jr., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research & Development Center for Teacher Education, The University of Texas, 1973.

Measurement described in Hall, G. E., George, A. A., & Rutherford, W. L. Measuring stages of concern about the innovation: A manual for use of the SoC Questionnaire. Austin: Research & Development Center for Teacher Education, The University of Texas, 1977.

Figure 2

Levels of Use of the Innovation

0 NONUSE: State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.

I ORIENTATION: State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demands upon user and user system.

II PREPARATION: State in which the user is preparing for first use of the innovation.

III MECHANICAL USE: State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.

IVA ROUTINE: State in which use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.

IVB REFINEMENT: State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.

V INTEGRATION: State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.

VI RENEWAL: State in which the user reevaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

Excerpted from: The LoU Chart: Operational definitions of Levels of Use of the Innovation. Austin: Research and Development Center for Teacher Education, The University of Texas, 1975.

at different field sites or in different classrooms. These changes made in an innovation during implementation have been named Innovation Configurations by the RCA Project. This dimension will not be treated in this paper.

Previous Research

A number of studies have confirmed the existence of the seven Stages of Concern among innovation users and that these concerns seem to be developmental (Hall & Rutherford, 1976; Hall, 1976; Loucks, 1977; Hall, 1977). Before beginning use of an innovation, individuals tend to have high concerns on Stages of Concern 0, 1, and 2. As they begin use Stage 3 concerns increase. Over time Stages 4, 5, and 6 become more intense with a decrease in Stages 0, 1, and 2. After using an innovation for a few years there is a tendency for concerns about the innovation to diminish in overall intensity. It should be noted that concerns are individualistic and at any one point in time any one individual's concerns cannot be predicted from those of a group and vice versa (Rutherford & Loucks, 1979).

Like Stages of Concern, eight Levels of Use in relation to an innovation have been verified (Loucks, 1976; Hall, 1977; Loucks, 1977, LaShier, 1977). A clear developmental movement through Levels of Use has not been established but some patterns are clear. Individuals seem to move through Levels I and II rather quickly and to LoU III with initial use of the innovation. Usually there are more individuals functioning at LoU IVA Routine than at any other level. Individuals who have recently begun use tend to "pause" at LoU IVA for awhile before moving to higher levels. Those who have been at higher levels seem to revert to LoU IVA after awhile. Few people function at Levels of Use V and VI than at other levels.

George and Rutherford (1978), in a study of the relationships between

Stages of Concern and Levels of Use, found that a predictive relationship exists between innovation adopter's concerns about the innovation and use of it. Change in use seems to be anticipated by a change in concerns.

The Present Study

In keeping with our purpose of studying variables that influence the individual decisions teachers make regarding change, we have also collected a vast amount of data on individual teachers that we feel, and the change literature suggests, may influence teachers' decisions about change. Included in the teacher variables are the following: level (elementary, secondary, higher education), sex, age, years of teaching, years at current school, years in present role, training in use of the innovation, and experience using the innovation.

Data for this paper is taken from two studies conducted by the RCA Project. One was a study conducted in a large suburban school district where a new elementary science program was being implemented. The new program, which was mandated, was being phased in over a two-year period. District schools were divided into three phases based on their time schedule for beginning use of the new program.

To support the implementation item of the program, teachers were first given a brief training session called pre-inservice workshop. This was followed by three single day inservice workshops that were spread over the first year of implementation for each phase. Teachers were given released time to attend the full-day workshop.

Phase I schools had two pre-inservice workshops in September and November, 1976, and began use of the new science curriculum January, 1977. The three in-service workshops were held in January, March and September, 1977.

Phase II had their pre-inservice workshop in January, 1977, with initial implementation beginning in March. Pre-inservices for Phase III schools were held in October, 1977, with January, 1978, set as the date for beginning implementation. Three inservice workshops followed for both Phase II and Phase III in a pattern similar to Phase I.

Levels of Use, Stages of Concern, and demographics of data were collected on 75 teachers in seven Phase I schools, 31 teachers in three Phase II schools, and 60 teachers in six Phase III schools. Teachers taught grades 3, 4, 5, or 6, or some combination of these. Data were collected in this district over a two year period beginning in the fall, 1976.

A second study was conducted in the only junior high school serving a mid-America community of approximately 40,000. This school contained only 8th and 9th grades; the innovation was a new approach to managing pupil behavior (Reality Therapy). This, also, was a mandated innovation -- all teachers were required to participate.

For two years, beginning in the fall, 1976, LoU, SoC, and various kinds of demographic data were collected on 55 teachers in this school.

Data Analysis

The data were analyzed using the analysis of covariance model contained in the SPSS system of computer programs (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). For each variable, the first assessment of concerns served as the covariate, the final assessment served as the dependent variable, and the values of the variable of interest served as the "groups" in the analysis. For example, the two values of sex (male and female) formed the groups, and the question was asked: Controlling for initial concerns, was there a difference in final concerns between males and females? In other words, did males and females have different concerns at the end of the two year implementation

effort when initial concerns were statistically equated? A separate analysis was run for each of the seven Stages of Concern for each of the variables in the study. A few variables had many values, such as years of teaching. Data for such variables were aggregated into meaningful groups before conducting the analyses.

In this paper, the results are presented by displaying the deviation from the mean of the various groups on the final concerns score. For example, if males had higher expected final concerns about collaboration than females, the finding would be reported as: males (1.84), females (-2.01). This means that the males' raw Stage 5 scores on the concerns questionnaire averaged 1.84 points above the mean and the females' Stage 5 scores averaged 2.01 points below the mean. Only the significant differences are reported, of course. No test for interaction between the covariate and the grouping variables was conducted prior to these analyses, primarily because of the large number of tests and limitations on the resources of the project.

The mean concerns profiles for the two innovations are shown in Figures 3 and 4.

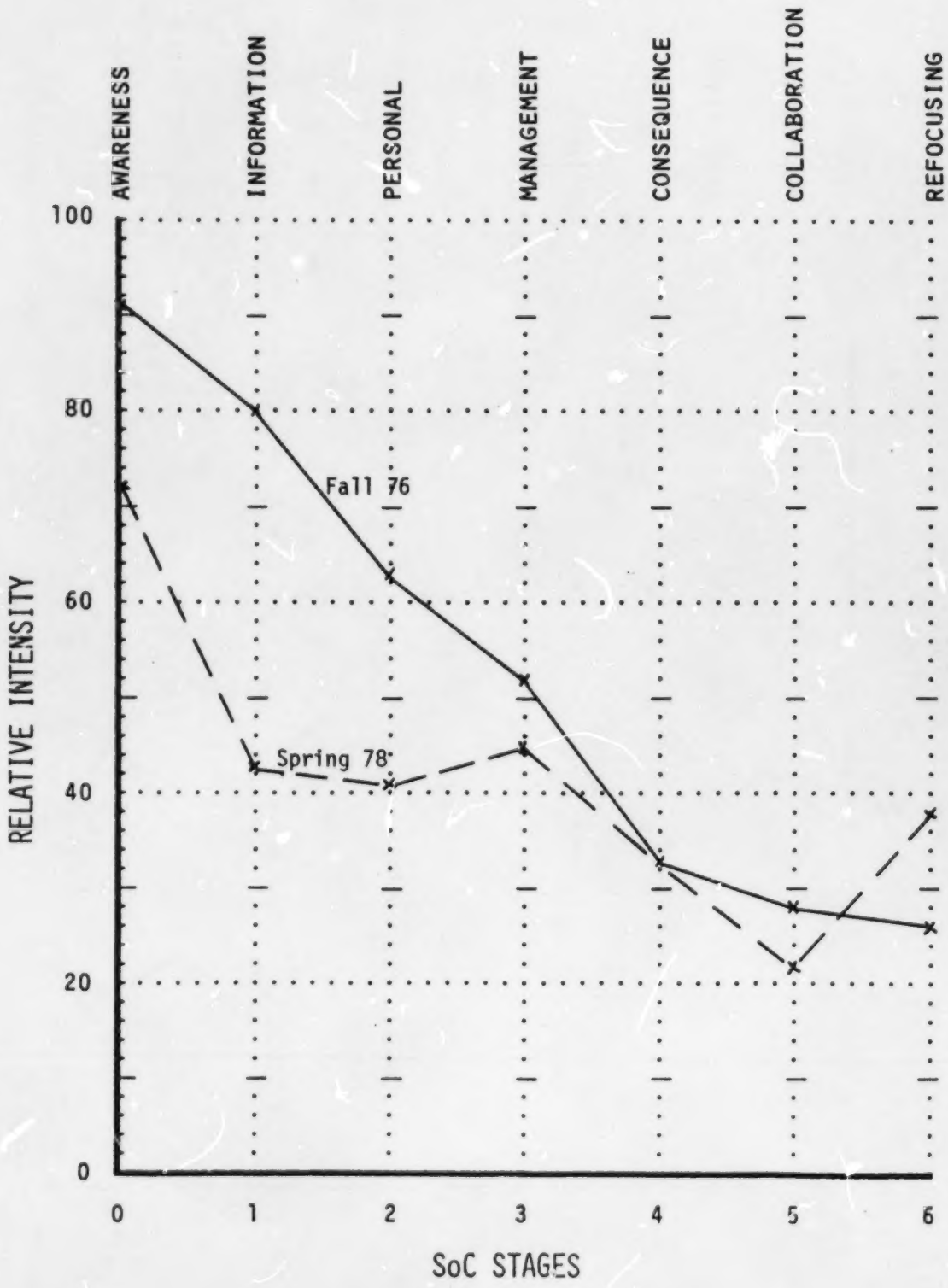
Data Base Science

From September, 1976, through May, 1978, SoC, LoU, and demographic data were collected on five occasions. Baseline demographic data were collected in September, 1976. All demographic data were collected through use of a set of questions attached to the SoC. The demographic information analyzed in this study is indicated below:

1. Sex
2. Total years teaching
3. Total years in present school
4. Grade level(s) now teaching

Figure 3

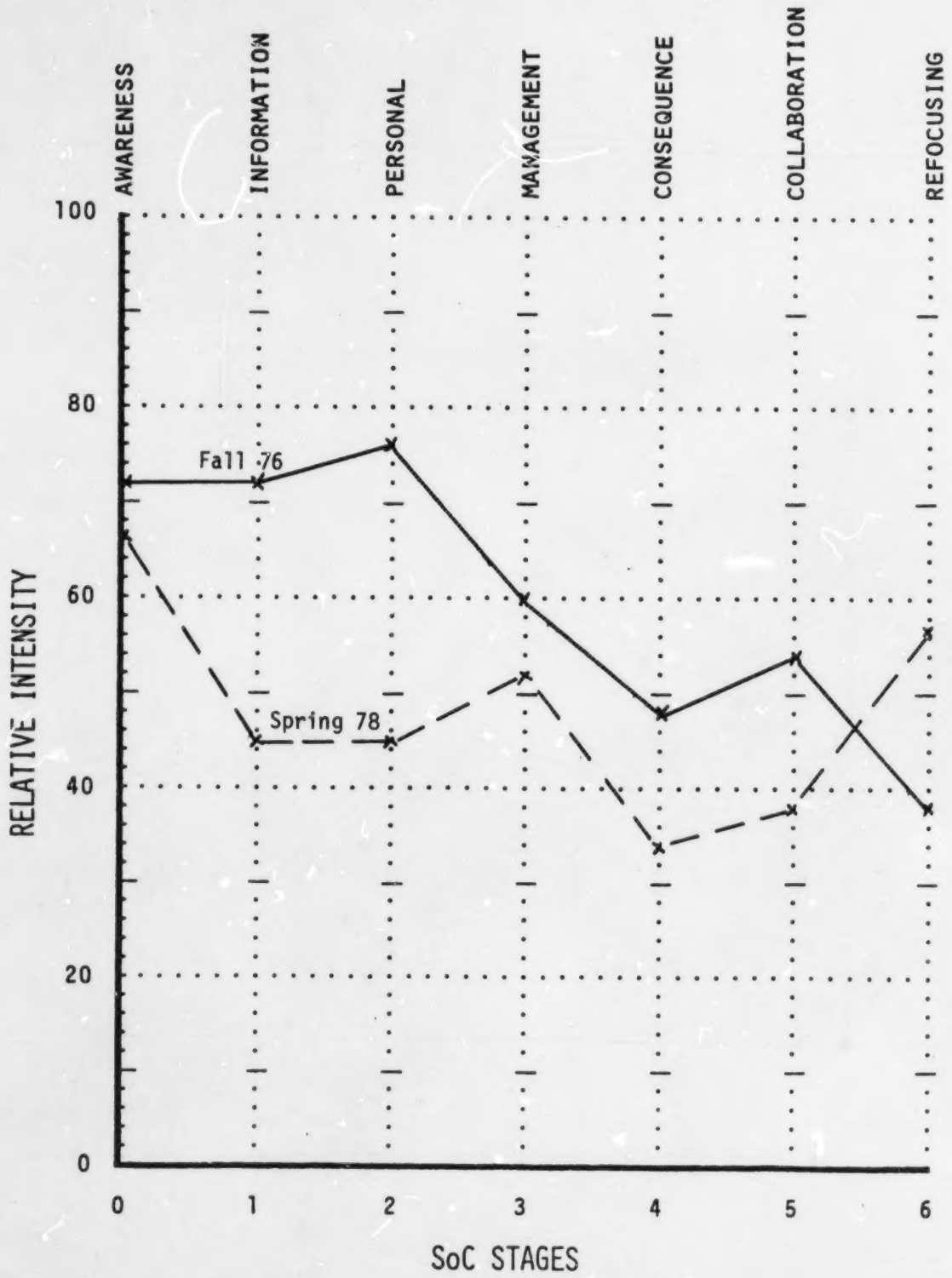
Mean Stage of Concern Profiles for the New Science Program in Fall, 1976 and Spring, 1978



Jeffco Science
N=129

Figure 4

Mean Stage of Concern Profiles for Reality Therapy
in Fall, 1976 and Spring, 1978



Reality Therapy
N=44

5. Teaching more than one level
6. Years teaching at this grade level
7. Years taught science at this grade level
8. Are you currently teaching

   Nc science
   Revised science curriculum
   Regular district curriculum
   Other science program

9. Average hours of science instruction your students receive per week
10. Do you teach science to more than one class/group per day
11. Have you had science inservice since September, 1971

One of the planned and intended interventions on the use of the innovation was the pre-inservice and inservice workshops for the teachers. Therefore, teachers were asked to identify if and when they had attended these workshops. For each inservice, a comparison was made between those who did and did not attend.

Findings -- Science

All findings presented were significant at the .05 level or better. Each question from the demographic data (listed above) and relevant findings will be presented individually:

1. Sex -- there were no significant differences in concerns related to to this variable.
2. Number of years teaching -- at the end of two years, teachers with 10-30 years of experience had higher Personal concerns (5.18) than did the 0-3 year group (-1.18) and the 4-9 year group (1.48). The same pattern was true for Impact concerns.
3. Number of years teaching at this school -- teachers in the 10-20 year bracket had higher Impact concerns scores at the end of two years (10.12) than the 0-3 year group (-.73) and the 4-9 year group (1.47).

4. Grade level now teaching -- grade 6 teachers had the lowest concerns (-5.37) while fifth grade teachers had the highest Personal concerns (8.11).

5. Teaching more than one level -- teachers who taught more than one level had lower scores on SoC 0, 1, and 2 than those who taught only one level.

6. Number of years teaching at this level -- no significant differences were found.

7. Number of years teaching science at current grade level -- no significant differences were found.

8. Science curriculum currently being taught -- no significant differences between the four choices were identified.

9. Average hours per week of science instruction -- there were no significant differences.

10. Teaching more than one class/group per day -- no significant differences were found.

11. Taken science inservice course since 1971 -- there were no significant differences.

12. The question about attendance at inservice yielded 25 significant correlations with various stages: 1 with SoC 0, 9 with SoC 1, 10 with SoC 2, 3 with SoC 4, and 2 with SoC 5. With two exceptions, one on SoC 0 and one on SoC 2, those who attended workshops earlier in the implementation effort had lower concerns than those who attended later workshops or none at all.

Discussion of Science Findings

The actual number of significant correlations between the demographic variables asked about in this study and Stages of Concern were limited. Of the total of seven significant correlations that were found there was no particular pattern or trend.

Teachers with the most years of teaching experience had the highest SoC 2 (Personal) concerns, which may indicate, as some have hypothesized, that making changes is more difficult for more experienced teachers. The more experienced teachers' concerns about the consequence of the innovation (SoC 4) were also higher than less experienced teachers, but the implication of this

is not clear. This could be due to doubts they had about the value of the innovation or it could be an indication of the more experienced teachers' attempts to make the innovation more effective for learners.

Changes from existing district science curriculum to the revised curriculum were more complex at fifth grade than at the other grade levels. This may explain why SoC 2 (Personal) concerns remained higher for these teachers. Why SoC 2 concerns for sixth grade teachers decreased is not clear since changes in that curriculum were also fairly complex.

No satisfactory explanation has been suggested to explain why teachers teaching more than one grade level had lower concerns on SoC 0, 1, and 2. One possibility is that many of those teaching more than one grade level were science specialists in the school. Thus, they would have a lot of information, experience, and confidence which would lower the SoC 0, 1, and 2 scores.

Data Base -- Reality Therapy (RT)

From September, 1976, through April, 1978, SoC data were collected from the junior high school seven times and LoU data six times. Baseline demographic data was collected in September, 1976, with certain additional data being collected throughout the study. The demographic information sought in this study is indicated below:

1. Sex
2. Total number of years teaching
3. Number of years teaching in this school
4. Grade level now teaching
5. Is this a new grade level for this year
6. Which teaching team are you assigned to (each teacher belonged to one of ten teaching teams)

7. When did you first hear of RT

    a. never heard of it
    b. within the last month
    c. less than one year ago
    d. one-three years ago
    e. more than three years ago

8. How long have you used RT

    a. never
    b. consistently for a year or more
    c. once in a while
    d. other

9. In your use of RT, do you consider yourself to be a

    a. nonuser
    b. novice
    c. intermediate
    d. experienced user
    e. past user

10. Have you received formal training in RT

11. Will you be involved in the development or use of any new programs (other than RT) in your school this year

12. In March, 1978, (second year of the study) teachers were asked if they anticipated a change in assignment for next year.

Findings -- Reality Therapy

The findings for each of the above items are presented here by item. Again, differences presented were significant at the .05 level or better.

1. Sex -- SoC 0 scores for females at the end of the study were lower (-2.00) than the scores for males (3.00).

2. Total number of years teaching -- there were no significant differences in concerns associated with this variable.

3. Number of years teaching in this school -- there were no significant differences in concerns associated with this variable.

4. Grade level now teaching -- on SoC 0 eighth grade teachers had lower scores than ninth grade teachers.

5. Is this a new grade level for this year -- this happened to only two teachers--no significant difference in these teachers' concerns were observed.

6. Teaching team assignment -- there were two stages (2 and 4) on which team assignments related significantly to concerns. On Stage 2 the average team score ranged from a low of -11.00 to a high of 5.15. On Stage 4 the scores ranged from a low of -12.23 to 8.41.

7. to 11. These items yielded no significant differences.

12. Anticipated an assignment change -- the seven teachers who answered "yes" to this had lower Stage 5 (Collaboration) concerns (-5.58) than did those who answered "no" (1.30).

In addition to these correlations, changes in SoC and LoU were compared. For this analysis, LoU's were placed into four groups, Group A--0, I, II; Group B--III; Group C--IVA; Group D--IVB, V, VI. The sequence of Stages of Concern are used here for reporting those findings.

Stage 0 -- subjects who had an LoU rating of IVB, V or VI in the fall, 1977, had lower scores on this stage (-4.27) than did those rated 0, I or II (4.14) or III (-3.52) or IVA (.25). Those who were rated IVB, V or VI in the spring, 1978, also had lower Stage 0 scores than the other three groups.

Stage 1 -- those in Group D in the fall, 1976, had lower scores on this stage (-5.22) than did the other groups (A=0; B=-1.04; C=7.98). Similarly, those in Group D in the spring, 1978, had lower scores than the other groups (A=4.33; B=5.08; C=-1.15).

Stage 2 -- in the fall, 1976, those who were in Group B had the lowest scores on this stage (-1.83). However, those who were in Group D in the spring, 1978, had lower scores (-7.60) than the other groups at that time (A=2.50; B=9.42; C=-.72).

Stage 3 -- there were no significant correlations with this stage.

Stage 4 -- significant correlations were found for three measurement periods, fall, 1977, spring, 1977, and spring, 1978. In each case, Group A had lower Stage 4 scores than the other groups.

Stage 5 -- subjects who were in Group A in the winter, 1977, had the lowest scores on this stage while Group B had the highest scores.

Stage 6 -- there were no significant correlations.

Discussion of Reality Therapy

As was the case in the science study, there were very few significant relationships between the demographic variables and Stages of Concern. The correlations that were found were too few and diverse to reflect patterns or

trends.

It was interesting to note the correlations between team assignment and Stages of Concern. The team that had the lowest SoC 2 scores was one that was very negative toward the innovation and used it as little as they could. Because they were trying to "ignore" the innovation they no longer had Personal (Stage 2) concerns about the innovation. On the other hand, the team that had the second lowest scores on this stage had the most sophisticated use of the innovation. The decrease in their scores from the initial assessment could be explained by the fact that they had long since resolved their Personal concerns.

The team with the highest SoC 2 scores was a team that was continuously attempting to refine and improve their use of the innovation -- but it was not easy for them. Given this situation one could readily understand why their Personal concerns were not as low as those of other teams.

Correlations between Stage 4 concerns and teaching team assignment -- the lowest scores on Consequence concerns (SoC 4) were observed for a team that did not agree with the innovation and had ceased to attempt to use it. Logically, their concerns about consequence of the innovation for students would be low. The team that had the highest scores on this stage was one that worked hard to improve their use of the innovation and by the beginning of the second year their efforts had begun to pay off. They were using the innovation in a comfortable and confident manner that allowed them to focus on the consequences on the innovation for students.

Findings from the correlation of SoC and LoU were not surprising for they were similar to findings from other studies comparing SoC and LoU. That is, subjects who were at the highest Levels of Use (IVB, V, VI) had the lowest concerns on SoC 0, 1, and 2. High scores on these stages are typically associated with nonusers and low scores with users.

In the other direction Group A (LoU 0, I, II) has the lowest scores on Stage 4 and 5. Since these LoU's are nonusers of the innovation, it is typical that their Consequence (SoC 4) and Collaboration (SoC 5) concerns would be low.

Conclusions and Discussion

A comparison of demographic variables for two rather different groups of teachers implementing very different types of innovations yielded very few significant findings when one considers the number of tests run. These findings were not only limited in number but were so diverse in nature as to defy any overall grouping or classification. It seems safe to conclude that the demographic variables investigated in these two studies had little relationship with innovation implementation.

Although it was not the focus of this paper, the data indicate that attendance at training workshops was associated with the greatest change in concerns about the innovation. The workshops were designed to address the concerns of the teachers, using the Concerns-Based Adoption Model as a framework and the same measures of concern used in this paper (Loucks & Melle, 1980). We are continuing to study the effects of workshops and other interventions that effect the implementation process, but are convinced that most demographic variables are largely irrelevant for predictive or planning purposes.

References

George, A. A. & Rutherford, W. L. Affective and behavioral change in individuals involved in innovation implementation. Paper presented at the annual meeting of the American Educational Research Association, Toronto, 1978.

Hall, G. E. A longitudinal investigation of individual implementation of educational innovations. Paper presented at the annual meeting of the American Educational Research Association, New York, 1977.

Hall, G. E. The study of individual teacher and professor concerns about innovations. The Journal of Teacher Education, Spring, 1976, 27(1), 22-23.

Hall, G. E. & Rutherford, W. L. Concerns of teachers about implementing team teaching. Educational Leadership, December, 1976, 34(3), 226-233.

Hall, G. E., Wallace, R. C., Jr., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research and Development Center for Teacher Education, The University of Texas, 1973.

LaShier, W. S. Levels of use of SCIS during the first two years of implementation. Paper presented at the annual meeting of the Association for the Education of Science Teachers, Cincinnati, 1977.

Loucks, S. F. An exploration of levels of use of an innovation and the relationship to student achievement. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1976.

Loucks, S. F. & Melle, M. Implementing a district-wide science curriculum: The effects of a three-year effort. Paper presented at the annual meeting of the American Educational Research Association, Boston, 1980.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. SPSS: statistical package for the social sciences. New York: McGraw-Hill, 1975.

Rutherford, W. L. & Loucks, S. F. Examination of the implementation of a junior high school's new approach to discipline by longitudinal analysis of change in teachers' Stages of Concern and Levels of Use. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1979.